



Poetry of Ideas: The Films of Charles Eames

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Poetry of Ideas: The Films of Charles Eames

Although many important artists have used film outside the usual theatrical-feature conventions, critics have too seldom found ways of discussing their work. Considering the great amount of creative energy going into short films of all kinds at present, this neglect needs to be remedied. The study below is an attempt to come to terms with the output of an immensely talented man whose films—which are only a part of his creative work—represent a peculiarly contemporary synthesis of film with science and technology.

They're not experimental films, they're not really films. They're just attempts to get across an idea.

—CHARLES EAMES

Charles Eames was baffled by the fact that anyone would want to write an article about his films. "When asked a question like that, about 'my approach to film,'" Eames said, "I would almost reply, 'Who me, film?' I don't think of it that way. I view film a little bit as a cheat; I'm sort of using a tool someone else has developed."

Because of his casual attitude toward "Film"—his debunking of the romantic myth of the "artist personality" and his concept of film as a primarily informational medium—Charles Eames has been able, in his recent films, to give "Film" what it needs most: a new way of perceiving ideas. As films move away from a period in which they were content to only show what they felt, and attempt little by little to also tell what they think, many of the most talented film-makers, young and old, are trying to graft onto movies the cerebral sensibility they have so long resisted. Eames personifies this sensibility, a sensibility so synonymous with his life and work that he cannot conceive of himself as only a "film-maker."

There are many ways one can think about Charles Eames. He defies categorization; he is architect, inventor, designer, craftsman, scientist, film-maker, professor. Yet in all his diversity Eames is one creator, and his creation is not a series of separate achievements, but a unified aesthetic with many branch-like manifestations. Eames's films do not function independently, but like branches; they do not derive from film history or tradition, but from a culminant culture with roots in many fields. A capsulized biography can give, in the most vulgar way, the scope of his career; but, as always, Eames remains greater than the sum of his avocations.

Born in St. Louis in 1907, Eames studied architecture at Washington University, in 1930 started his own practice, and in 1940 married Ray Kaiser, a painter with whom he subsequently shared credit for all his work. In 1940 Eames and Eero Saarinen collaborated on designs for the Museum of Modern Art's Organic Furniture Competition. From these designs came a generation of Eames chairs: from the luxurious black leather Eames lounge chair to the omnipresent molded fiberglass stacking chairs, which, within twenty years, had re-



ceived such mass acceptance that Eames's way of sitting was, in a fundamental sense, everybody's way of sitting. In 1941, to encourage the wartime production of their first chair prototypes, Charles and Ray perfected an inexpensive lamination process for wood veneers, and in the same year Charles went to work, temporarily, for the art department of MGM. In between chairs, the Charles Eames Workshop produced toys, furniture, gliders, leg splints, and magazine covers. In 1949 Eames designed the Santa Monica House (where he still lives), which, like the chairs, was a model of simplicity and variety, and soon became a standard textbook illustration.

The Eames films commenced in 1950 and over the next fifteen years they won awards at Edinburgh, Melbourne, San Francisco, American, Mannheim, Montreal, and London film festivals. "A Rough Sketch for a Sample Lesson for a Hypothetical Course," presented by Charles and Ray (with George Nelson and Alexander Girard) in 1953 at the University of Georgia and UCLA, was the first public presentation of multi-media techniques. In 1960 Eames's rapid cutting experiments in the CBS "Fabulous Fifties" special won him an Emmy

Charles and Ray Eames in their studio.

for graphic design. During this period Eames designed a series of World's Fair presentations: in 1959 the multi-screen presentation for the US exhibit at Moscow, in 1962 a multi-screen introduction to the US Science Exhibit at Seattle (where it is still shown), in 1964 the IBM Ovoid Pavilion and the film presentations in it, at the New York Fair. Over the years Eames has prepared courses and lectured across the world, and will this fall hold the Charles Eliot Norton Chair of Poetry at Harvard.

Charles Eames can weave in and out of these diverse occupations because he is not committed to any of them. He is, in the final account, committed to a way of life which encompasses them all. The toys, chairs, films are the available tools through which Eames can actualize his life-style. The common denominator of Eames's occupations is that he is, elementally, one thing: a problem-solver, with aesthetic and social considerations. He approaches life as a set of problems, each of which must be defined, delineated, abstracted, and solved. His architect's mind visualizes complex social patterns twisting and folding like a three-dimensional blueprint. He

respects the “problem” not only as a means to an end, but as an aesthetic pleasure in itself. Although Eames rarely rhapsodizes about anything, his most “emotional” prose is saved for a description of the problem-solving process:

The ability to make decisions is a proper function of problem solving. Computer problems, philosophical problems, homely ones: the steps in solving each are essentially the same, some methods being elaborate variations of others. But homely or complex, the specific answers we get are not the only rewards or even the greatest. It is in preparing the problem for solution, in the necessary steps of simplification, that we often gain the richest rewards. It is in this process that we are apt to get a true insight into the nature of the problem. Such insight is of great and lasting value to us as individuals and to us as a society.

—from *Think*,

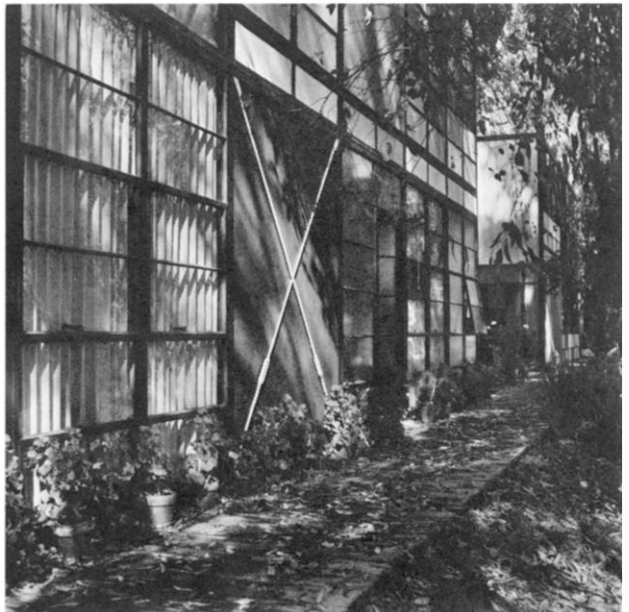
the IBM New York Fair presentation

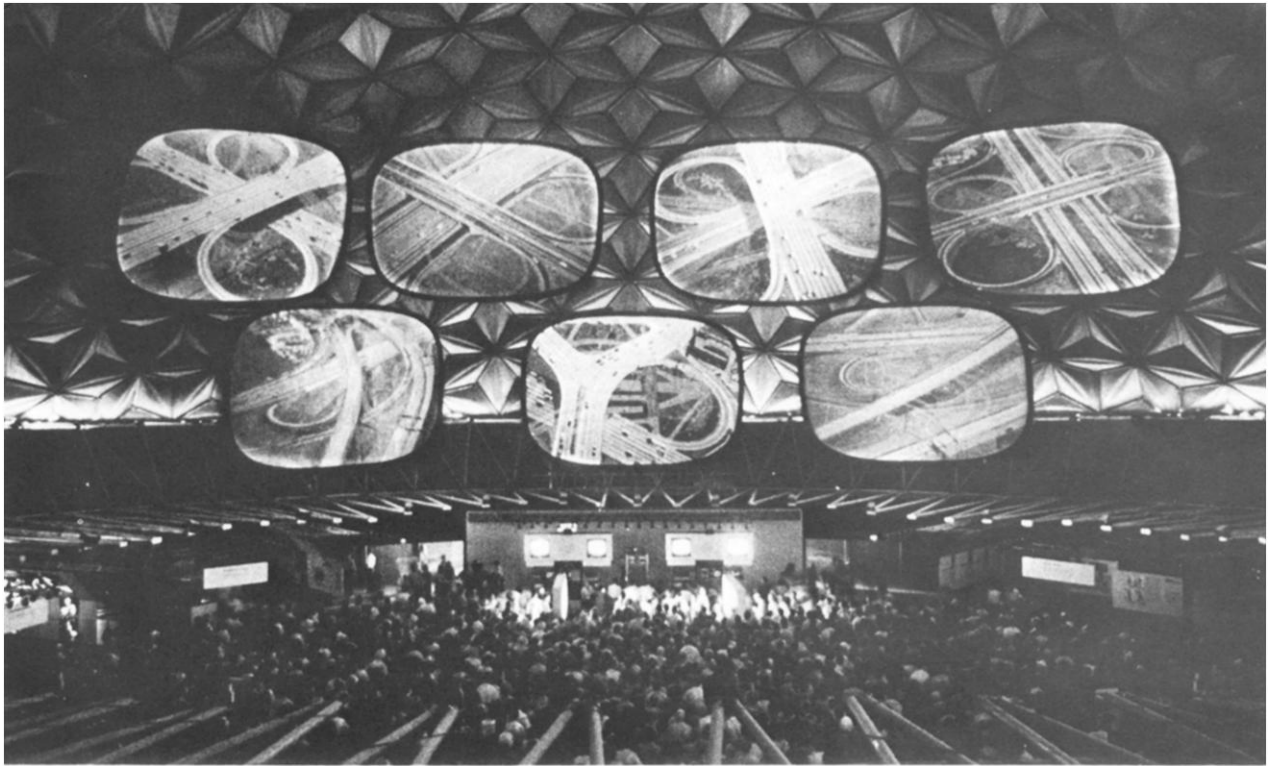
For Eames, problem solving is one of the answers to the problem of contemporary civilization. Not only does his problem-solving process provide beauty and order, but it constitutes the only *optimistic* approach to the future. He is currently working for the Head Start program, a task he feels vital because “you have to teach children to have a genuine respect for a large number of events and objects which are not of immediate gain to them. It is the

only thing which puts a human being in a situation where he can promptly assess the next step. Whether it is in the ghetto or Appalachia, kids get their beginning having respect only for things which have an immediate payoff, and this is no way to run a railroad, particularly when you don’t know what the next problem will be.” Eames will not indulge in the despair of a complete overview, not because it is illegitimate, but because it can’t solve the problems. “You can’t take too broad a perspective,” he says, quoting Nobel Prize winning physicist Richard Feynman; “you have to find a corner and pick away at it.”

Charles Eames is, in the broadest sense of the word, a scientist. In his film introduction to the US Science Exhibit at the Seattle Fair, Eames prescribed what that rare creature, the true scientist, should be, and it is a description of Charles Eames:

Science is essentially an artistic or philosophical enterprise carried on for its own sake.





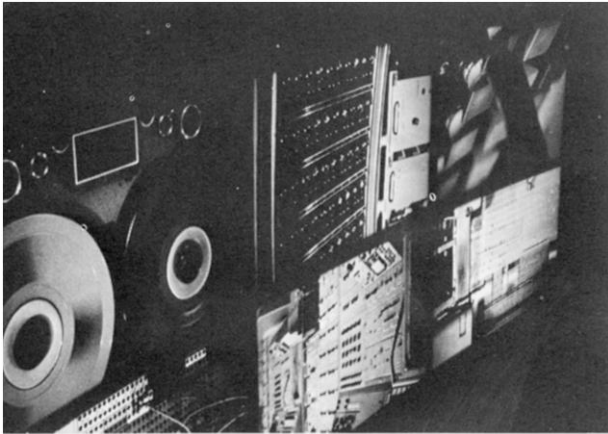
US Exhibit, Moscow World's Fair, 1959

In this it is more akin to play than to work. But it is quite a sophisticated play in which the scientist views nature as a system of interlocking puzzles. He assumes that the puzzles have a solution, that they will be fair. He holds to a faith in the underlying order of the universe. His motivation is his fascination with the puzzle itself—his method a curious interplay between idea and experiment. His pleasures are those of any artist. High on the list of prerequisites for being a scientist is a quality that defines the rich human being as much as it does the man of science, that is, his ability and his desire to reach out with his mind and his imagination to something outside himself.

—from *House of Science*

To counter that the puzzles don't have a solution and are not fair is to beg the question, because the scientist does not admit these possibilities into his working definition. Because his pleasures "are those of any artist" the scientist sustains his world not necessarily by empirical proof, but by his "faith in the underlying order

of the universe." In this way Eames's scientist may seem similar to the scientists of the Enlightenment who constructed elaborate fictions of order, only to have them collapse with the next wave of data. But unlike the Newtonian cosmologist Eames does not state that the solvable problem is necessarily a microcosm for the universe, which may have no solution. Eames is describing a *Weltanschauung*, not the universe. A corollary argument leveled (often by artists) against Eames's scientist accuses him of being shallowly optimistic, unaware of man's condition. C. P. Snow defended scientists against this charge in his "Two Cultures" lecture: "Nearly all of them [the scientists]—and this is where the color of hope genuinely comes in—would see no reason why, just because the individual condition is tragic, so must the social condition be." It is a fallacy of men of letters to equate contemporaneity with pessimism—as if Beckett's "it" crawling in the mud was unavoidably the man of the future. One of the exciting



Multiscreen projection, HOUSE OF SCIENCE, 1962

things about Eames's film-maker, like his scientist, is that he challenges the hegemony of pessimism in the contemporary arts.

Although Eames's structuring of the problem may seem antiquated (and this is debatable), his solutions are undeniably modern. His statement about the designing of a chair is not only a remarkable account of the creative process, but also a pioneering approach to art in a society in which the individual has become progressively functionalized and collectivized:

"How do you design a chair for acceptance by another person? By not thinking of what the other guy wants, but by coming to terms with the fact that while we may think we are different from other people in some ways at some moments, the fact of the matter is that we're a hell of a lot more like each other than we're different, and that we're certainly more like each other than we're like a tree or a stone. So then you relax back into the position of trying to satisfy yourself—except for a real trap, that is, what part of yourself do you try to satisfy? The trap is that if you try to satisfy your idiosyncrasies, those little things on the surface, you're dead, because it is in those idiosyncrasies that you're different from other people. And in a sense what gives a work of craft its personal style is usually where it failed to solve the problem rather than where it solved it. That's what gives it the Noguchi touch, or whatever. What you try to do is satisfy your real gut instincts and work your way through your idiosyncrasies, as we have tried in the stuff we've done, the furniture or the ideas. You know it's tough

EAMES

enough just to make the first step of understanding without trying to introduce our personality or trying to outguess what the other guy's thinking."

The Eameses have constructed structures—a house, chair, film—in which people can define themselves not by their idiosyncrasies but by their similarities. These structures permit problem-solving—and therefore give the scientist hope. To some these structures will seem artificial and solipsistic, but in an age which has so ruthlessly degraded man's individuality any attempt to restructure the concept of humanism will necessarily seem artificial.

From Eames's sensibility have come two contributions: one pertaining primarily to architecture and design, which has already been incorporated into the international cultural mainstream, and another most applicable to film, which is being developed and exists only as potential for mass audiences.

Eames's first contribution concerns what British critic Peter Smithson calls "object-integrity." The Eames aesthetic respects an object for what it is, whether machine-made or hand-crafted, and is based on "careful selection with extra-cultural surprise, rather than harmony of profile, as its criteria—a kind of wide-eyed wonder of seeing the culturally disparate together and so happy with each other." Smithson goes on, "This sounds like whimsy, but the vehicles are ordinary to culture." Eames's vehicles, his "structures," make it possible for an object to have integrity.

The Eames aesthetic brought art into the marketplace through the assembly line. There was neither fear of nor blind obedience toward the machine. The machine, like its heir the computer, are tools which must be used by the artist as well as the entrepreneur. It is proletarian art: "We want to get the most of the best to the most for the least," Eames has said; "in the final analysis I want to try to reach the greatest number of people." The Eames chair stands as a tribute to the universality of his aesthetic; at the same time beautiful and functional, it is being manufactured in every continent except Africa. "By the late 50's," writes

Smithson, "the Eames way of seeing things had in a sense become everybody's style."

Eames's aesthetic is in opposition to one of the older canons of art criticism, Ruskin's theory of "invention." In "The Nature of the Gothic" Ruskin instructed customers to purchase only goods which showed the hand of the inventor, rejecting anything copied or undistinctive, even to the point of preferring the rough to the smooth. The Eames aesthetic contends that the customer, who organizes the life context in which objects exist, is as much a creative agent as the artist, and that it is his creative imperative to organize and respect the "inventive" as well as the commonplace objects. "If people would only realize," Eames said, "that they have the real stuff in their hand, in their back yards, their lives could be richer. They are afraid to get involved."

The second Eames contribution results when the Eames aesthetic of object-integrity is carried into the electronic age. There are two reasons: first of all, a computer cannot have object-integrity the way a chair or a toy train does. A chair is essentially shape, color, and movement, but a computer is much more. To respect a computer one must understand how it thinks, must appreciate Boolean Logic. As Eames's objects became more complex, his approach necessarily became more cerebral.

Secondly, the object-integrity aesthetic is now confronted by an objectless society. "The conscious covetors are growing tremendously," Eames has said, "and the covetables in our society are shrinking tremendously. There's not much worth coveting. I feel that a lot of this vacuum is going to be beautifully filled by certain mastery of concepts, mastery of, say, the French or Russian language. And the beauty of this is that the coin of the realm is real. It means involvement on the part of the guy that's getting it. He's got it, all he has to do is give of himself. A lot of this is going to have to come through film."

Eames's second contribution, then, concerns the presentation of ideas through film. His method is information-overload. Eames's films give the viewer more data than he can possibly

process. The host at the IBM Pavilion succinctly forewarned his audience:

Ladies and gentlemen, welcome to the IBM information machine. And the information machine is just that—a machine designed to help me give you a lot of information in a very short time.

—from *Thing*

Eames's information machine dispenses a lot of data, but only one idea. All the data must pertain directly to the fundamental idea; the data are not superfluous, simply superabundant. Eames's innovation, it seems to me, is a hypothesis about audience perception which, so far, is only proved by the effectiveness of his films. His films pursue an Idea (Time, Space, Symmetry, Topology) which in the final accounting must stand alone, apart from any psychological, social, or moral implications. The viewer must rapidly sort out and prune the superabundant data if he is to follow the swift progression of thought. This process of elimination continues until the viewer has pruned away everything but the disembodied Idea. By giving the viewer more information than he can assimilate, information-overload short-circuits the normal conduits of inductive reasoning. The classic movie staple is the chase, and Eames's films present a new kind of chase, a chase through a set of information in search of an Idea.

To be most effective the information cannot be random, as in a multi-media light show, or simply "astounding," as in the multi-media displays at Expo '67 which Ray described as "rather frivolous." The Idea conveyed by the information must have integrity, as evidenced by its problem-solving potential, intellectual stimulation, and beauty of form. The multi-media "experience" is a corruption of information-overload in the same way that the Barbara Jones and Peter Blake "found-art" collages are corruptions of object-integrity—they present the innovation without the aesthetic. Through information-overload, the Idea becomes the new covetable, the object which has integrity in an objectless society. To paraphrase Eames, it is in the quest of the Idea that we often gain the richest rewards.

The films of Charles and Ray Eames fall into two categories. The first, the "Toy Films," primarily use the first Eames contribution, object-integrity; the second, the "Idea Films," use the second Eames contribution, information-overload.

Through precise, visual, non-narrative examination the toy films reveal the definitive characteristics of commonplace objects. The toy films were the natural place for the Eameses to begin in film, for they found in simple, photographed objects—soap-water running over blacktop, toy towns and soldiers, bread—the characteristics they were trying to bring out in the furniture design:

In a good old toy there is apt to be nothing self-conscious about the use of materials—what is wood is wood; what is tin is tin; and what is cast is beautifully cast.

—from *Toccata for Toy Trains*

Eames's film career is often equated with his toy films. Because of this mistaken assumption, the Eames films have already seen a critical rise and fall. Eames's films received their initial recognition during the heyday of the Norman McLaren pixillation, the early fifties, when the Museum of Modern Art and the Edinburgh Film Festival acclaimed the early toy films, *Bread*, *Blacktop*, *Parade*. Eames's reputation rose with McLaren's, and fell with it. The Eameses became typed as the toy film-makers, and critical interest died off.

The Eameses continued to make films, toy films as well as idea films. The toy films have progressed throughout the intervening years, using "toys" of varied complexity, the Santa Monica House, baroque churches, toy trains, the Schuetz calculating machine, the Lick Observatory. Each toy film presents a structure in which objects can "be themselves," can act like "toys" in the same way that humans, given a certain structure, can act like children. The object need not be only functional; it can assume a number of positions. The Lick telescope is at one time practical, cumbersome, odd, and beautiful. One feels the same respect for the telescope that the Lick astronomer must feel after years of collaboration with the instrument.

It cohabits the same structure, has meaning, both functional and aesthetic, and, in brief, has integrity.

The latest toy film, and the best, is *Tops*, a seven-minute study of just what the title says, tops. *Tops* is a refinement of the toy film technique. The structures are simplified: there is no narration, scantier backdrops, less plot; and the object assumes a greater importance within the structure. Tops of every variety are presented. The viewer studies the ethnic impulses, the form variations, the coloration, and the spinning methods of tops. The first half of *Tops* presents tops in all their diversity, gradually narrowing the scope of its investigation to simpler and simpler forms: a jack, a carrom, and, finally, a



spinning tack. This is a moment of object-integrity: all the complexity and variation of tops have resolved into the basic form of two planes, one of them suspended by the balanced forces of gravity and gyroscopic momentum. The unaware viewer realizes that he has never really understood even an insignificant creation like a top, never accepted it on its own terms, never *enjoyed* it. The second half of *Tops*, which depicts the “fall” of the tops, moves back to more complex tops, against blank backgrounds, giving the viewer a chance to see the same tops again, but with the new eyes of insight and sensitivity.

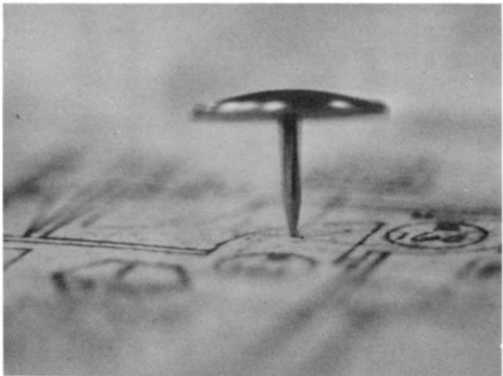
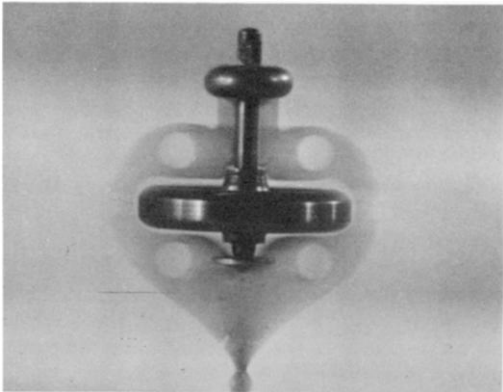
Eames feels that the toy films are as essential as the idea films. “I don’t think it’s an over-

statement,” he remarked “to say that without a film like *Tops* there would be no idea films. It’s all part of the same process, and I think I could convince IBM of that, if necessary.”

From the outset of their film-making, the Eameses were also making another sort of film, a film which dealt with objects with cerebral integrity. Eames’s first idea film, *A Communications Primer*, resulted from a problem Eames realized he had to state before he could solve. He says, “I had the feeling that in the world of architecture they were going to get nowhere unless the process of information was going to come and enter city planning in general. You could not really anticipate a strategy that would solve the increase in population or the social changes which were going on unless you had some way of handling this information. And so help me, this was the reason for making the first film, because we looked for some material on communications. We went to Bell Labs and they showed us pictures of a man with a beard and somebody says, ‘You will invent the telephone,’ or something. And this is about all you get. So we made a film called *Communications Primer*, essentially for architects.”

Innovation is often a by-product of Eames’s problem solving, as when Charles and Ray developed a lamination process for wood veneers to permit mass manufacture of their chairs. Similarly, Eames, in his desire to solve the complex, non-immediate problems of the city, and in his desire to bring integrity to the computer, developed a revolutionary method of information presentation. In 1953 Charles and Ray presented “A Rough Sketch for a Sample Lesson for a Hypothetical Course,” the first multimedia demonstration. “A Rough Sketch” not only featured three concurrent images, but also a live narrator, a long board of printed visual information, and complimentary smells piped through the ventilation system.

Eames’s technique of information-overload has progressed just as his toy film technique has, and some of the first “revolutionary” films look rather primitive compared to his recent work. Eames has developed several methods of information overload. The most basic, of course,



is fast cutting (*Two Baroque Churches* has 296 still shots, roughly one every two seconds). He often has several screens (the most being twenty-two at the N.Y. Fair, although not all the images were projected simultaneously), but has realized that a multiplicity of action on one screen can often have more impact than a single action on several separate screens. He has often used animation to simplify data, so that it can be delivered faster with clarity. One of Eames's most successful techniques is to split the screen between live action and animation, each of which affects the mental process differently. Eames also counterpoints narration, sound effects, music, and images to present several related bits of data simultaneously.

These techniques will certainly fade, just as did the McLaren aspects of his earlier films. Multi-media projections are a bit passé just now, and Eames isn't designing any at the moment. But, nonetheless, Eames's films hold up phenomenally well, because they are based on an aesthetic, not just an innovation. (Eames's specific techniques have several competent practitioners: Wheaton Galentine's 1954 *Treadle and Bobbin* corresponds to Eames's toy films, Don Levy's 1964 *Time Is* corresponds to Eames's idea films.) Even though the specific techniques and in some cases the very ideas of his earlier films may become antiquated, Eames's way of living seems as immediate today as ever. The solutions may no longer seem pressing, but his problem-solving process still offers beauty and intellectual stimulation.

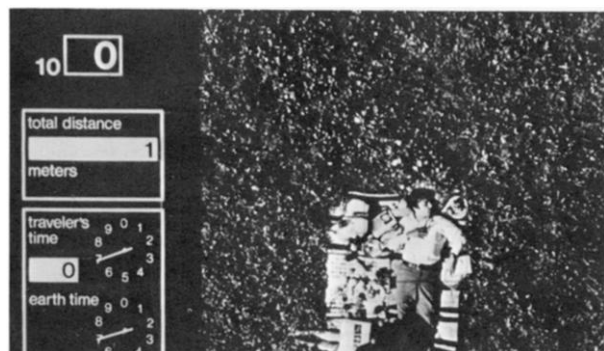
Two of Eames's recent films, *Powers of Ten* and *National Aquarium Presentation*, are re-

finements of the idea-film technique just as *Tops* is a refinement of the toy films. These two films represent the two sorts of ideas Eames designs, the single or the environmental concept, and are more universal than Eames's earlier computer ideas. Because of the richness of the aesthetic Eames brings to these films, the ideas they portray inevitably strike deeper than originally intended.

Powers of Ten was a "sketch film" to be presented at an assembly of one thousand of America's top physicists. The sketch should, Eames decided, appeal to a ten-year-old as well as a physicist; it should contain a "gut feeling" about dimensions in time and space as well as a sound theoretical approach to those dimensions. The solution was a continuous zoom from the farthest known point in space to the nucleus of a carbon atom resting in a man's wrist lying on Miami Beach. The camera zooms from the man's wrist to a hypothetical point in space and zooms back again, going through the man's wrist to the frontier of the inner atom.

Going out, the speed of the trip was 10^{10} meters per second*—that is, in each 10 seconds of travel the imaginary voyager covered 10 times the distance he had traveled in the previous 10 seconds. In this schema a trip from the nucleus of the carbon atom to the farthest known reaches of the universe takes 350 seconds. This information is presented in several

* Time divided by 10 is the "power"—in other words, after 40 seconds, you are 10-to-the-fourth meters away, or one followed by four zeros (10,000).



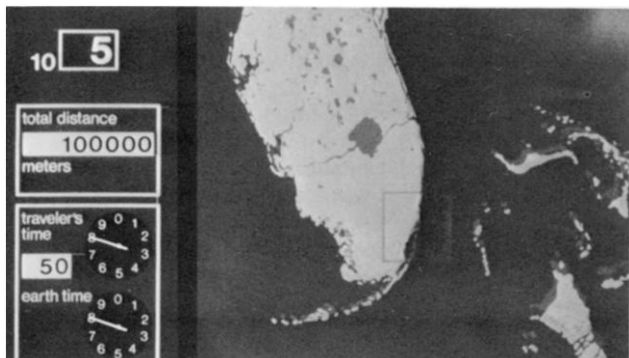
ways: the right central section of the screen pictures the actual zoom, at the left of the screen a dashboard with several clocks shows the total distance traveled, the power of ten achieved, the traveler's time, the earth time, and the percentage of the speed of light. A dispassionate female voice—a robot stewardess—describes every second of the journey in full, rapid detail. The narrator also supplies extraneous, unexpected information. “We have now reached the point where we can see the distance light travels in one minute,” she says, and a short burst of light, one minute long, passes before our eyes. In addition, there is an eerie score supplied by Elmer Bernstein on a miniature Japanese organ.

Handling information in such a way, *Powers of Ten* is able to give more data more densely than a multi-screen presentation. The pictorial area of the screen in itself has more visual information than the mind can assimilate. Every spot on the image is a continuous transformation: skin becomes a wrist, wrist a man, man a beach, beach a peninsula, and so on, each change the square of the previous change, and each faster than the viewer can adjust his equilibrium. The zooming image, in itself, is only an “experience” and could easily be used in a light show (as it has been at the Whiskey A Go Go in Los Angeles). But the irony of *Powers of Ten* is that the narration and the dashboard demand exactly what the viewer is unable to do: make cerebral sense of the fantastic voyage. The monotone narration and animated dashboard affect the other side of perception; they use the conventional methods of appealing to reason. From the first frame of this eight-minute

film the spectator is at a perceptual fail-safe point; both his mental and emotional facilities are over-taxed. As the viewer backs off from such a fail-safe point, as he has to, he takes with him certain souvenirs—individual data which in each case will be different, but mostly an Idea which in this case is about the dimensions of time and space.

The interstellar roller-coaster ride of *Powers of Ten* does what the analogous sequence in *2001: A Space Odyssey* should have: it gives the full impact—instinctual as well as cerebral—of contemporary scientific theories. (In comparison *2001*, like Expo '67 seems “astounding.”) It popularizes (in the best sense of the word) post-Einsteinian thought the way the telescope popularized Copernicus; and the effect is almost as upsetting. The spectator is in perspectiveless space; there is no one place where he can objectively judge another place. Just as the vacationing hayseed begins to think of himself as a citizen of the country rather than of just Sioux Center, and the jet-setter begins to think of himself as a citizen of the world rather than of just the United States, so the time-space traveler of *Powers of Ten* thinks of himself as a citizen of the universe, an unbounded territory.

Eames approached the problem in universal terms (to please the ten year-old as well as the nuclear physicist) and, as in designing a chair, sought to find what was most common to their experience. Sophisticated scientific data was not the denominator (although the film had to handle such matters with complete accuracy to maintain credibility), but it was that inchoate “gut feeling” of new physics which even the



most jaded scientist, as Eames says, "had never quite seen in this way before." Just as it took a more complex and intellectual structure to give a computer integrity than a toy train, so it took a more complex and intellectual structure to give the powers-of-ten-extended-through-space-and-time-idea integrity than Boolean Logic. *Powers of Ten* goes beyond a simple explanation of the powers of ten (which Eames had done in his *IBM Mathematics Peep Show* by using the parable of the chess board and sacks of grain), and concretizes a concept of the universe true to contemporary experience. And that Idea is covetable.

National Aquarium Presentation resulted from a more earthly problem. *Aquarium* is, simply enough, a report to the Department of Interior on a proposed National Aquarium. After two years of research and design, the Eames office presented the Department of the Interior not a voluminous sheath of blueprints, but a ten-minute color film and an illustrative booklet. The problem was not only to develop the design and rationale for the Aquarium, but also to persuade an economy-minded Congress to lay out the cash for such a project. When dealing with the government, film is the petitioner's ideal medium: "I've discovered," says Eames, "that not even a senator dares to stand up and interrupt a film."

Again Eames had to state the problem before he could solve it: "*Aquarium* wasn't a selling job, it was a report. Mike Kerwin, a venerable member of Congress, was interested in this and this was to be Mike Kerwin's monument. But Mike Kerwin didn't have any idea really of what an aquarium should be. As he or someone else said, 'Anything to keep those little children from peeing in the Capitol.' This is about the level these projects get started. The only thing you can do is try to create a level someone else would be embarrassed to fall below."

National Aquarium Presentation constructs the Aquarium in ten minutes, from overall conception to minute detail. Step by rapid step the film discusses the rationale, decides on a location, landscapes the environment, constructs the

building, details the departments, and takes the viewer on a guided tour of the finished institution. Diverse methods of information presentation are used: graphs, animation, models, live-action, narration, music.

The guiding principles of the Aquarium are not simply aquatic curiosity or research. Like all of Eames's creations, the Aquarium is founded on organization, practicality, intelligence, and enjoyment. *Aquarium* makes sure that the viewer doesn't mistake those fish for something inessential to man. One who wishes to attack the Aquarium must attack the principles it is based on. The true function of the Aquarium is stated in the concluding lines of narration:

Still the greatest souvenirs of the Aquarium may be the beauty and intellectual stimulation it holds. The principal goal is much the same as science, to give the visitor some understanding of the natural world. If the National Aquarium is as good as it can be, it will do just that.

—from *National Aquarium Presentation*

Even though Congress has yet to give final approval, the National Aquarium exists. It exists not only to the architects, to whom it always exists, but also to those who have seen Eames's film. After seeing the film, viewers speak of the Aquarium in the present; the fact that they cannot go the Washington and experience the Aquarium tactilely is only a chronological misfortune. The viewer has already experienced the full delights of the Aquarium, its beauty and intellectual stimulation. When the Aquarium is finally built, it seems to me, it will not be because the government really felt that it was needed, but because the Aquarium has already existed in so many minds—Congressmen, scientists, bureaucrats—that a physical structure was necessary to concretize the cinematic experience. And, if the Aquarium is built, it will be a rare demonstration of the *Realpolitik* power of an idea.

The irony and power of *National Aquarium* is that it is greater than the Aquarium ever can be. In its finest form the Aquarium exists in the mind, and the physical structure can only be a pale imitation of the dream. Eames calls *National Aquarium* a "fiction of reality," and like



Ecological greenhouse, NATIONAL AQUARIUM, 1967

the best fictions it is more meaningful than its reality. Eames has constructed the Aquarium like Borges constructed the Library of Babel, in his short story of that title. Like the Aquarium the Library is real because it is definitive, it can encompass all reality. Just as the writer of "Library of Babel" was able to define himself as a member of the Library, it is possible to define oneself as a member of the Aquarium. The Aquarium has all the virtues of a meaningful existence; it offers a way of perceiving the outside world, one's neighbor, and one's self. And even if one is only a visitor to the Aquarium, as we all must be, the Aquarium presents the virtues of beauty and intellectual stimulation that one would be embarrassed to fall below.

The radical, wonderful thing about Eames's Aquarium is that you *can* live there. One of the pleasures and limitations of Traditional cinema is that it is idiosyncratic: only Fellini can fully live in Fellini's world, Godard in Godard's, Hawks in Hawks's (great films transcend these limitations to varying degrees). Like an architect, Charles Eames builds film-structures in which many people can live, solve their problems, and respect their environment.

The three films discussed, *Tops*, *Powers of Ten*, and *National Aquarium Presentation*, total less than twenty-five minutes of screen time. To extrapolate an environmental aesthetic from a ten-minute sponsored film like *National Aquarium* may seem like the height of critical mannerism to some, and it is certainly possible that Eames's first films are not as important as I think they are. But in examining his films in detail, one finds the essential qualities of contemporary art. The Eames aesthetic personalizes assembly-line art, gives creator power to the consumer, permits individual integrity within a dehumanized collective, and allows the field to have as much value as the items within it.

In film, the Eames aesthetic introduces a new way of perceiving ideas into a medium which has been surprisingly anti-intellectual. Cinema threw every other art into the twentieth century, Wylie Cypher contends in *Rococo to Cubism*, and remained woefully in the nineteenth itself. Much of the upheaval in contemporary films has been the protest of the romantic-idiosyncratic tradition against itself. Even the best of recent

films, like *Persona*, *Belle de Jour*, *The Wild Bunch*, are too inherently a part of the tradition they protest to posit an alternative cinema. The few film-makers handling ideas today, Robbe-Grillet, Rohmer, Godard, Resnais, seem to fail because they cannot escape the romantic perspective. The French intellectual cinema (the *only* intellectual cinema) verges on bankruptcy; its failures are as disastrous as Godard's *One Plus One*, its successes as minimal as Robbe-Grillet's *Trans-Europe Express*. Because Eames comes from another discipline with a pre-existing aesthetic he is able to bring innovation to an art which in the area of ideas is only spinning its wheels. It is Eames's aesthetic which is ultimately the innovation.

Eames returns to film in a limited and exploratory manner what Cubism took from it in the early 1900's. What Sypher wrote of the cubist art of Cézanne, Eliot, Pirandello, and Gide is now true of Eames's films:

"Have we not been misled by the nineteenth-century romantic belief that the imagination means either emotional power or the concrete image, the metaphor alone. We have not supposed there is a poetry of ideas."

INTERVIEW

I spoke with Charles Eames on several occasions during January, 1970, and the quotes in the preceding article are excerpted from those conversations. Afterward, I posed written questions to Eames, intended to capsule and explore many of the discussions we had had, to which he responded in writing.

Your career has seen many permutations. At times you have been an architect, furniture designer, a craftsman, an inventor, a film-maker, and a professor. Do you see a sense of design in your own career, or does it appear to be more accidental or haphazard?

Looking back on our work, I see no design—certainly nothing haphazard, and not much that could really be called accidental. What I think I see is a natural, though not predictable, growth toward a goal that has not ever been specified.

Given an empty blank, say, about the size of an IBM card, how would you characterize your current occupation?

I am occupied mostly by things that I have to fight my way through in order to get some work done.

How does an Eames film originate? What do the discussions with the producer(s) entail? What determines whether you and Ray will accept or reject a proposed film?

A film comes as a result of one of two situations. It is either a logical extension of some immediate problem we are working on, or it is something we have been wanting to do for a long time and can't put off any longer.

On several occasions you have stated that you regard film simply as the medium through which you solve problems and explain concepts. What, for you, has made film so uniquely suited to this task?

We have fallen for the illusion that film is a perfectly controlled medium; that after the mess of production, when it is all in the can, nothing can erode it—the image, the color, the timing, the sound, everything is under control. It is just an illusion—thoughtless reproduction, projection and presentation turn it into a mess again. Still, putting an idea on film provides the ideal discipline for whittling that idea down to size.

One of the most consistent techniques in your films is information-overload, that is, you habitually give more data than the mind can assimilate. What do you think is the effect of this cascading level of information on the viewer? Do you think this effect can be conditioning, that it can expand the ability to perceive? In other words, will a viewer learn more from the fifth Eames film he sees than the first, assuming they are of equal complexity?

I don't really believe we overload, but if that is what it is, we try to use it in a way that heightens the reality of the subject, and where, if the viewer is reduced to only a sampling, that sampling will be true to the spirit of the subject. Maybe after seeing one or two the viewer learns to relax.

Concerning Day of the Deed and Two Baroque Churches in Germany, films which utilize

a rapid succession of still views, Michael Brawne wrote in Architectural Design that "the interesting point about this method of film making is not only that it is relatively simple to produce and that rather more information can be conveyed than when there is movement on the screen, but that it corresponds surprisingly closely with the way in which the brain normally records the images it receives." Do you feel this is actually the way the brain works, and is that why you used that technique?

Because the viewer is being led at the cutter's pace, it can, over a long period, be exhausting. But this technique can deliver a great amount of information in much the same way we naturally perceive it—we did this pretty consciously.

Alison Smithson, another British critic, has written of your furniture, "The influence of the West Coast comes to us through Eames." To what extent do you think Mrs. Smithson is correct? This question may imply that Los Angeles is the prototype for America, as some city-planners have said, and I certainly wouldn't hold you responsible for that.

Los Angeles is the prototype for any city built by any people from anywhere, who have been removed from their native constraints. We have perhaps carried with us a few more constraints than most, and this may be what the Smithsons choose to recognize.

You have never handled a fictional situation in your films, and I assume this is by choice rather than accident. I would like to ask if there might arise a problem which you felt could best be solved in a fictional manner—but this is incumbent upon an understanding of what is "fiction." The IBM Puppet Shows segment "Sherlock Holmes in 'The Singular Case of the Plural Green Mustache'" would seem to be a fiction in conventional terms, yet its plot is nothing but an exercise in Boolean Logic. The outstanding feature of National Aquarium Presentation is that it seems to be a fiction more real—more immediate—than the object it portrays. Perhaps it would be more accurate to ask what you would consider a "fiction" in the framework of your films, and if you feel or have

felt any aspects of fictionality creeping into your work?

I think the meaning of fiction that you ascribed to the Aquarium is quite accurate. Fiction in this case is used as a model or simulation against which to try out possible reactions. I suppose it is true that none of our films has had any trace of plot, in most of them it is structure that takes the place of plot.

One definition of fiction which might be applied to your films is anything which violates the scientific verities of the universe. Yet one of the thrusts of modern science is the truth that science considered from any one perspective is in itself a fiction. Would you consider making a fiction of science, that is, either criticizing a particular theory-fiction because it is too limited, or positing a multi-faceted conception of perceiving the universe, just as you posited the Aquarium?

I believe it would be possible to build in film a conception/a fiction of science—but it would probably be bound by the same constraints as any scientific hypothesis.

Relevant to this discussion is the fact that you have never explicated philosophical or psychological problems, only scientific ones. You have never attempted a film like, say, an adaptation of Cassirer's Philosophy of the Enlightenment, although such a film made in your style could be extraordinary. A philosophical theory cannot be empirically limited in the way a scientific one can, yet I think your best "science" film, Powers of Ten, works in that area where modern science and philosophy converge in outer space. You once mentioned the possibility of making a film illustration of one of Richard Feynman's lectures. Would not such a project bring you even further away from the comfortable ground of computer logic and into the nebulous sphere of modern philosophy?

I have never looked upon any of our films as being scientific, but at the same time I have never considered them less philosophical than scientific.

When dealing with some fairly elaborate problems, such as the computer, the city, the Aquarium, etc., we have usually tried to re-

duce the general problem to a series of small simple units that even we could really understand, and pass something of this particular understanding on. Some special combination of units may give the whole piece a smell of science or of philosophy.

Several years ago, C. P. Snow's Two Cultures revived the science-art debate in England, and to a lesser extent in this country. Are there two cultures in the way Snow describes, and is this necessarily dangerous? Science and art seem to have merged completely in the lives of yourself and Ray, but others have a difficulty integrating these spheres.

If there are two cultures, as Snow suggests, it is probably no more or less dangerous than the ignorance that goes with polarized training and thinking ever was—but, at this time in particular, it seems unnecessary.

You once expressed concern over Feynman's involvement with local artists. You said the tendency for a collision with a sculptor or a painter who is preoccupied with certain personality idiosyncrasies could derail him (Feynman) and you want to protect him because something great could happen. Is this statement simply altruistic, or perhaps are you reacting to a certain voguishness or lack of thought on the part of the artists, or even that scientists shouldn't truck with "idiosyncratic" methods of expression?

Naturally, I would not think that any exposure to the art types would really derail Feynman. I am super-impatient with those, who, with the object of somehow heightening the aesthetic values of the community, seek to bring painters and sculptors together with scientists in a conscious effort to affect the aesthetic climate.

I have a conviction, no matter how unlikely it sometimes seems, that somehow, sometime, out of the world engaged in problem-structuring and scientific pursuits, will come a sharpening and a new awareness of aesthetic values.

The danger is that this world can be prematurely contaminated by a virus that results in preoccupation with self-expression. When a scientist, engineer, mathematician (with natural

resistance less than that of Feynman) collide with the painter, sculptor, they catch the bug to which the painter, sculptor have developed an immunity. Little moves toward self-expression, a self-conscious attitude toward "Art" and a numbing of the sense that would allow them to recognize aesthetics as an extension of their own discipline.

In House of Science, the scientist is defined as one who "assumes that the puzzles have a solution, that they will be fair." What would your scientist say if someone countered that the puzzles had no solution, and weren't fair?

He could give one scientist's reaction, Einstein's. When asked a question similar to that, he replied, "God may be subtle, but he's not malicious."

FILMOGRAPHY

This filmography was compiled with the assistance of the Charles Eames Workshop. Information about many of the films is sketchy, inadequate, or unknown. Eames has written descriptions of some of the films, and I have supplied others. All of the films were conceived and directed by Charles and Ray Eames, and photographed by Charles Eames.

Glen Fleck, a vital part of the Eames film-making process, is not mentioned in the filmography, primarily because his contribution to individual films is difficult to assess. "Up to very recently," Eames said, "he (Glen Fleck) is the only one in the office with whom we have talked about concept or form." Eames wrote the following description of Fleck's role and credits: "Glen came to the office during the development of the first *Mathematica* (1950). He did the drawings on three of the peep shows then later organized the material and did the animation on the prologue to the House of Science. Recently, he also did the organization and animation on Computer Glossary and worked on the IBM Fair show. At the moment most of his work is computer concepts and he is masterminding that big history of data processing. Glen is one of the very few people who has a sense of what it is to communicate meaning. What is more, he has a sense of when he has not communicated it, and a sense of when he has not understood it in the first place—very rare."

Films marked "(nl)" are not for loan under any circumstances. A few of Eames's films are distributed by IBM and the Museum of Modern Art. Most of the films, however, have no uniform distribution, although this matter is being given consideration. For further information write: Charles Eames Workshop, 901 Washington Boulevard, Venice, California, 90291.

Traveling Boy. 1950. Color. (nl). A journey through the world of toys, with a mechanical boy as tour guide.

Parade, or Here They Come Down the Street. 1952. 6 minutes. Color. "Filmed entirely with mechanical toys as actors moving against a background of children's drawing of a city street. Band

music, Sousa's *Stars and Stripes Forever*, accompanies the toy elephants and tigers and horses while brilliant Japanese paper flowers and balloons burst in the air over their heads. Drawings by Sansi Girard at age 5." Winner of Edinburgh Film Festival Award, 1954.

Blacktop. 1952. 11 minutes. Color. "An exercise in musical and visual Variations on a Theme, *Blacktop* is the image of water and foam generated in the washing of a blacktopped school yard viewed against the music of Landowska playing Bach's Goldberg Variations." Winner of Edinburgh International Film Festival Award, 1954.

Bread. 1953. 6 minutes, 30 seconds. Color. Study of Bread made for Eames's "A Rough Sketch for a Sample Lesson for a Hypothetical Course."

Calligraphy. 1953. Study of Calligraphy for "A Rough Sketch."

Communications Primer. 1953. 22 minutes, 30 seconds. Color. "An early attempt to make a popular presentation of communications theory—while a few of the techniques and words seem dated, most of it holds up quite well. The original motivation was to encourage such disciplines in the worlds of architecture and planning."

Sofa Compact. 1954. 11 minutes. Color. Traces the design and development of a product and its uses.

Two Baroque Churches in Germany. 1955. 10 minutes, 30 seconds. "These two churches, Vierzehnheiligen and Ottobeuren, are rich examples of mid-18th Century German Baroque, a time when music, literature, architecture and philosophy were unified. The film, rather than explaining the structure, attempts to give in one reel with 296 stills, the feeling of what German Baroque was and what gave it such great style. Music by George Muffat played by Walter Korner on the organ at Vierzehnheiligen."

House. 1955. 11 minutes. Color. "Largely because of Elmer Bernstein's fine score this becomes a rather poetic view of the Eames house in Pacific Palisades, California. It is full of details of everything, but is now a bit dated except for those with a historical interest." Winner of Festival International du Film Montreal Award, 1961.

Textiles and Ornamental Arts of India. 1955. 11 minutes, 30 seconds. Color. Film record of an exhibition, designed and installed by Alexander Girard of material selected by Alexander Girard and Edgar Kaufman.

Eames Lounge Chair. 1956. 2 minutes, 15 seconds. B&W. "A stylized and sped-up scene of the assembling of the Eames leather lounge chair and ottoman, with music improvised by Elmer Bernstein."

Aerial sequences in *The Spirit of St. Louis*. 1956. Color. *St. Louis* was directed for Warner Brothers by Billy Wilder, a life-long friend of the Eameses.

Day of the Dead. 1957. Color. A portrayal of the Mexican Day

of the Dead consisting of still shots and narration. Winner of San Francisco International Film Festival Award, 1958.

Toccata for Toy Trains. 1957. 14 minutes. Color. "Toy trains in toccata form is a nostalgic and historical record of great old toys from the world of trains. The characters, the architecture, the objects with which the scenes were built, were all somewhere, at sometime, manufactured and sold. Music score by Elmer Bernstein." Winner of Edinburgh International Film Festival Award, 1957. Seventh Melbourne Film Festival Award, 1958. American Film Festival Award, 1959. Scholastic Teachers' 11th Annual Film Award, 1960.

The Information Machine. 1957. 10 minutes. Color. "An animated film made in 1957 for use in the IBM Pavilion at the Brussels World's Fair. Because it deals mostly in the general principles surrounding man's problems and the electronic computer, the points made in the film do not yet seem too dated. Music by Elmer Bernstein. Drawings by Dolores Cannata." Winner of Edinburgh International Film Festival Award, 1958, Melbourne Film Festival Award, 1963.

The Expanding Airport. 1958. 10 minutes. Color. Presents Eero Saarinen's concept for Dulles Airport.

Herman Miller at the Brussels Fair. 1958. 4 minutes, 30 seconds. Color. A film for the American Pavilion at the 1958 Brussels World's Fair.

De Gaulle Sketch. 1959. 1 minute, 30 seconds. B&W. "An at-the-moment attempt to put together all the images that appeared in the press on the de Gaulle crisis in a one-and-one-half-minute resume. Later in January of 1960, Eric Severeid used it on CBS in his recapping of events of the fifties."

Glimpses of USA. 1959. 12 minutes. Color. *Glimpses of USA* was commissioned by the State Department to introduce the United States Exhibit at the Moscow World's Fair. A rapid succession of still photos depicting various aspects of American life were projected on seven 32-foot screens inclosed within a geodesic dome designed by Buckminster Fuller. *Glimpses of USA* was never shown in its original form outside of the Moscow Fair presentations.

Jazz Chair (nl). 1960. 6 minutes, 30 seconds.

Introduction to Feedback. 1960. 11 minutes. Color. "By using a large variety of familiar examples that all have the feedback principle in common, this film presents a broad view of the phenomena present in control mechanism and social situations. Musical score by Elmer Bernstein." Winner of Festival International du Film de Montreal Award, 1961, Internationale Filmwoche, Mannheim, Germany, Award, 1961, Melbourne Film Festival Award, 1963.

Sequences in the CBS special *Fabulous Fifties*, including *Music Sequence*, *Dead Sequence*, *De Gaulle*, *Gift From the Sea* (nl), *The Comics* (nl), *Where Did You Go—Out?* (nl). 1960. B&W. Eames described the *Music Sequence*: "This introduced what later became a fashionable quick-cut technique in television. It

was a resume of the popular music of the fifties, for Leland Hayward's 'Fabulous Fifties'." Winner of Emmy Award for Graphics, 1960.

IBM Mathematics Peep Show. 1961. 11 minutes. Color. "Produced originally to support the mathematical exhibition designed for IBM, this film is composed of five individual segments—each about 2 minutes long and each demonstrating a particular mathematical concept. Music by Elmer Bernstein." Winner of Festival International du Film de Montreal Award, 1961, London Film Festival Award, 1963.

Kaleidoscope. (nl) 1961.

Kaleidoscope Shop. (nl) 1961. 3 minutes, 30 seconds. A tour around the Eames Workshop through a Kaleidoscope.

ECS (Eames Contract Storage). 1962. 7 minutes. Color. A training and sales film for Herman Miller.

House of Science. 1962. 15 minutes, 30 seconds. Color. Six-screen presentation commissioned by the US Government for Seattle World's Fair. It has become a permanent exhibit called *Eames Theatre*. Eames has described a single-screen version: "A single-screen version of the multi-screen introduction to the United States Science Exhibit in Seattle. The 'House of Science' draws attention to the role of men, their environment, ideas and achievements in our world—a view of science and how it got that way."

Before the Fair. 1962. 8 minutes. Color. "This film, made for Herman Miller, shows the very last-minute hustle, bustle, painting and clean up on the days just before opening the 1962 Seattle World's Fair—also some Herman Miller furniture."

IBM Fair Presentation Film I and II. (nl). 1962, revised 1963. Made for the IBM presentation at the Seattle Fair, and later revised for the New York World's Fair.

Sequences in the CBS special *The Good Years*, including *Meet Me in St. Louis*, *San Francisco Fire*, (nl), *Panic on Wall Street* (nl). 1962. B&W.

Think. 1964, revised 1965. 13 minutes, 30 seconds. Color. A multi-screen presentation at the Ovoid Theater of the IBM Pavilion of the New York World's Fair. *Think* was projected on 22 separate screens (shaped in circles, squares, triangles, and rectangles), and included a live host. The 22 images were not projected simultaneously, and included live and still motion and animation. The IBM Pavilion, including the Ovoid Theater, was designed by Eames. *Think* is available in a single screen version titled *View From the People Wall: A single screen condensation of the elaborate multi-image show at the IBM Pavilion in New York, aimed at showing that the complex problems of our times are solved in the same way as the simple problems, they are just more complicated.* Musical score by Elmer Bernstein.

IBM Puppet Shows. 1965. 9 minutes. Color. Two puppet shows titled "Sherlock Holmes in 'The Singular Case of the Plural Green Mustache'" and "Computer Day at Midvale." "A film version of two electronically controlled puppet shows on dis-

play at the IBM Pavilion at the New York World's Fair. In one, Sherlock Holmes solves a crime by his usual method (and the computer method)—Boolean Algebra. In the second, then, the town of Midvale celebrates the installation of its first computer. The mayor jumps to some conclusions which the computer expert has a difficult time correcting."

IBM at the Fair. 1965. 7 minutes, 30 seconds. A fast-paced montage of the IBM Pavilion. Music by Elmer Bernstein.

Westinghouse A.B.C. 1965. 12 minutes. Color. Pictures some quick glimpses of current Westinghouse products—in alphabetical order. Music by Elmer Bernstein.

The Smithsonian Institution. 1965. 36 minutes. B&W. "A film produced at the time of the 200th anniversary of Smithsonian's birth. It describes events leading up to the founding of the Institution and the work of those men that set the character of the Smithsonian. Music by Elmer Bernstein."

The Smithsonian Newsreel. (nl) 1965. 20 minutes.

Horizontes. 1966. Opening and end titles for a series of Latin-American films for USIA.

Boeing the Leading Edge. 1966. 11 minutes. Color. "A film designed to illustrate the degree to which computer control is used to support, insure and extend development, design and production in a modern aero-space manufacturing facility."

IBM Museum. (nl). 1967. 10 minutes.

A Computer Glossary. 1967. 10 minutes, 47 seconds. Color. "With a live-action prologue that gives an intimate view of a computer data path, this animated film presents, through computer terminology, some revealing and characteristic aspects of the electronic problem-solving art. Used in the IBM Pavilion at the San Antonio World's Fair. Music by Elmer Bernstein."

National Aquarium Presentation. 1967. 10 minutes, 34 seconds. Color. "A film report to the Secretary of the Interior showing what the architecture and the program of the new National Aquarium will be, something of what it would contain and general philosophies and discipline that would be involved. Musical score by Buddy Collette."

Schuetz Machine. 1967. 7 minutes, 15 seconds. Color. Visual study of the Schuetz calculating machine.

Lick Observatory. 1968. 10 minutes. Color. "A somewhat nostalgic view of an astronomer's environment in an observatory on a mountain—made to give students who have not seen a large instrument something of the smell and sentiment of these surroundings."

Babbage. 1968. 3 min, 50 seconds. A visual study of the calculating machine or difference engine.

Powers of Ten. 1968. 7 minutes, 53 seconds. Color. "A linear view of our universe from the human scale to the sea of galaxies,

then directly down to the nucleus of a carbon atom. With an image, a narration and a dashboard, it gives a clue to the relative size of things and what it means to add another zero to any number."

Photography and the City. 1969. 15 minutes. Color. "A film about the influence photography has had in the shaping of cities and the solving of urban problems. The first part is a historic review of some of the photographs that for the most part, by intent, have had an influence on the city. The last part is essentially a catalogue of those images from which a wide variety of information about the city can be derived."

Tops. 1969. 7 minutes, 15 seconds. Color. A visual study of tops.

Films in Progress

The UN Information Center. Another "fiction of reality," pro-

posing a communications hub for the United Nations. "In this film we really go beyond ourselves," Eames said; "what we really end up doing is making a case for the UN."

Man's View of Himself. A study of "man's changing notion of what makes him unique, and a realization that only when man stops worrying about what makes him unique can he solve the problems his uniqueness poses." Commissioned by IBM.

Memory. Commissioned by IBM.

The Perry Expedition. Commodore Perry's 1853 "Opening of Asia," as seen through Japanese documents of the times. Commissioned by the Smithsonian Institute.

Two films for the National Aquarium. One on shellfish, and another on the introduction of exotic species into an environment. The latter will consist of 25 rapid, consecutive examples.

JOSEPH MCBRIDE

Welles Before Kane

Orson Welles has never mentioned to interviewers that he did any experimentation in film prior to his coming to Hollywood—undoubtedly preferring the world to think that he burst full-blown on the scene with *Citizen Kane*. To an interviewer who asked him recently how he arrived at *Kane's* "cinematic innovations," he replied airily, "I owe it to my ignorance. If this word seems inadequate to you, replace it with innocence." But Welles was far from being a filmic innocent. There have been a few furtive mentions, largely unheeded by film historians, of a film he shot in 1938 for use in a Mercury Theatre stage production, William Gillette's farce *Too Much Johnson*, which ran for two weeks at the Stony Creek Summer Theatre in New York before Welles decided not to bring it to Broadway. He reportedly shot a twenty-minute silent prologue to the play, and ten-minute films to introduce the second and third acts. Included in the cast were Joseph Cotten,

Edgar Barrier, Marc Blitzstein and Virginia Nicholson, Welles's first wife. I have not been able to see a print of *Too Much Johnson*. Welles has one, but he says that it is not worth seeing without the play. He also shot a film as prologue to his 1939 vaudeville show, *The Green Goddess*, "depicting an air crash in the Himalayas," according to his associate Richard Wilson. This also has so far proved impossible to locate.

But I have been able to unearth an extremely interesting little silent film called *The Hearts of Age*, preserved in a private collection, which apparently was Welles's first venture into film. It runs about four minutes and stars Welles and Virginia Nicholson. The copy I saw, until recently probably the only one extant, was the original 16mm print. It was donated, as part of the Vance collection, to the Greenwich (Conn.) Public Library. The sound of the splices clicking through the projector was nerve-wracking—though the film is in remarkably good condition